

For discussion  
on 16 June 2020

**Legislative Council  
Panel on Commerce and Industry**

**Innovation and Technology Development and  
the Re-industrialisation Policy in Hong Kong**

**PURPOSE**

This paper briefs Members on the policies and measures related to innovation and technology (“I&T”) development and “re-industrialisation” in Hong Kong.

**BACKGROUND**

2. The Government has been committed to promoting the development of I&T, with a view to injecting new impetus into the economy, improving people’s quality of life, and creating quality jobs for young people. The Chief Executive announced in the Policy Address delivered in October 2017 that the Government would step up I&T development through eight major areas, including: increasing resources for research and development (“R&D”), pooling technology talent, providing investment funding, providing technological research infrastructure, reviewing existing legislations and regulations, opening up government data, leading changes to procurement arrangements, and strengthening popular science education. In addition, the Government has been actively promoting “re-industrialisation” in recent years to develop advanced manufacturing industries that are based on new technologies and smart production, so as to identify new growth points for Hong Kong’s economic development.

3. The Government has been actively taking forward the aforementioned eight major areas. The relevant work progress is monitored regularly by the Steering Committee on Innovation and Technology, chaired by the Chief Executive. The ensuing paragraphs will highlight the key measures of the Innovation and Technology Bureau (“ITB”) and the latest development in respect of R&D investment, technology talent, technological infrastructure, venture capital, I&T culture as well as promoting “re-industrialisation”.

## INCREASING R&D INVESTMENT

4. R&D is the fountain of I&T. The Government has set a goal to double the gross domestic expenditures on R&D (“GERD”) as a percentage of the Gross Domestic Product (“GDP”) to 1.5% by the end of the current Government’s five-year term of office. To this end, apart from endeavouring to support R&D activities through various schemes, the Government has also been fostering technology transfer and realisation of R&D results.

### *Encourage and Support R&D*

5. To encourage more enterprises to conduct R&D locally and promote technological innovation and economic development in Hong Kong, the Government provided a two-tiered enhanced tax deduction for qualifying R&D expenditures incurred by enterprises with effect from 1 April 2018. The deduction is 300% for the first \$2 million of the aggregate amount of payments made to “designated local research institutions” for “qualifying R&D activities” and the qualifying R&D expenditures incurred by enterprises. The remaining amount is qualified for 200% tax deduction. There is no cap on the amount of enhanced tax deduction and the deduction is applicable to all enterprises. For the profit tax returns received by Inland Revenue Department for the 2018-19 assessment year, there were 110 claims for tax deduction related to R&D and the relevant expenditures for claiming tax deduction were about \$1.82 billion.

6. The Innovation and Technology Fund (“ITF”) administered by the Innovation and Technology Commission (“ITC”) was established in 1999 to finance projects that contribute to the I&T upgrading in our manufacturing and services industries in Hong Kong. Currently, there are 16 funding schemes, each having its own objectives, under the ITF, including seven funding schemes which support R&D<sup>1</sup>. These schemes provide funding support for R&D projects of eligible organisations and enterprises, or provide cash rebate for eligible R&D expenditure of enterprises. From 2016 to 2019, the ITF funded around 8 500 projects with a total funding commitment of about \$7.73 billion, an increase by two and

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<sup>1</sup> They are the Innovation and Technology Support Programme, Mainland-Hong Kong Joint Funding Scheme, Guangdong-Hong Kong Technology Cooperation Funding Scheme, Partnership Research Programme, Midstream Research Programme for Universities, Enterprise Support Scheme and R&D Cash Rebate Scheme.

1.4 times respectively as compared to the previous four-year period (2012 to 2015). Also, the funding commitment for R&D projects has increased by 70%.

7. Regarding cross-boundary remittance of R&D funding from the Mainland to Hong Kong, as introduced by the Central Government with the new guidelines in May 2018, eligible universities and research institutions in Hong Kong can gradually bid for funding to undertake centrally financed science and technology projects, on the basis of merit and competition. The new arrangements realised cross-boundary remittance of project funding, which the local technology sector had long been calling for. Substantive progress has been made in the past two years. Apart from the Ministry of Science and Technology (“MOST”), the National Natural Science Foundation of China and the relevant government agencies at provincial or municipal level in the Mainland have also progressively approved R&D funds to local universities and R&D institutions to conduct R&D projects or set up laboratories. Since mid-2019, over RMB 250 million of cross-boundary R&D funds have been approved. Such funding provides an added impetus for Hong Kong’s I&T development.

#### *Foster Technology Transfer and Realisation of R&D Results*

8. There is excellent scientific research talent in various local universities and institutions. To fully unleash our strengths in scientific research and foster technology transfer as well as realisation of R&D results, we have increased the funding amount for the 16 State Key Laboratories (“SKLs”) in Hong Kong, six Hong Kong Branches of the Chinese National Engineering Research Centres (“CNERCs”), Technology Transfer Offices (“TTOs”) of seven designated universities<sup>2</sup> and the Universities and the Technology Start-up Support Scheme for Universities (“TSSSU”) starting from 2019-20 and made the funding recurrent. Among which, the maximum annual funding for each SKL and Hong Kong Branch of the CNERCs has been doubled to \$10 million. The maximum annual funding for TTOs of each university has also been doubled to \$8 million. Moreover, the maximum annual funding for the six universities under the TSSSU<sup>3</sup> has been doubled to \$8 million, and the maximum amount of

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<sup>2</sup> The University of Hong Kong, the Chinese University of Hong Kong, City University of Hong Kong, the Hong Kong University of Science and Technology, Hong Kong Baptist University, the Education University of Hong Kong and the Hong Kong Polytechnic University.

<sup>3</sup> The University of Hong Kong, the Chinese University of Hong Kong, City University of Hong Kong, the Hong Kong University of Science and Technology, Hong Kong Baptist University and the Hong Kong Polytechnic University.

financial assistance to each start-up has been increased from \$1.2 million to \$1.5 million per year. From 2016 to 2019-20, TSSSU provided a total of \$120 million for 196 start-ups.

9. On the other hand, the Public Sector Trial Scheme (“PSTS”) under the ITF supports public sector bodies to try out new technologies or products developed from ITF-funded projects and by incubatees/graduate tenants of the Hong Kong Science and Technology Parks Corporation (“HKSTPC”) and the Cyberport. To encourage more local trials of local R&D outcomes, we have extended the funding scope of the PSTS to cover all technology companies conducting R&D activities in Hong Kong since the end of March 2020 to encourage more enterprises to realise and commercialise their R&D outcomes. From 2016 to 2019, the PSTS funded 125 projects involving funding of about \$244.4 million, benefitting 90 trial organisations to conduct over 160 trials. Compared to the previous four-year period (2012 to 2015), the funding amount and number of funded projects under the PSTS have increased by over 40% and over 20% respectively.

## **POOLING TECHNOLOGY TALENT**

10. Development of I&T needs excellent technology talent. The Government has been adopting a three-pronged approach of nurturing, retaining and attracting talent, with a view to expanding the local I&T talent pool.

11. In terms of nurturing talent, we launched the Researcher Programme (“RP”) and Postdoctoral Hub (“PH”) under the ITF in 2004 and 2018 respectively to provide funding support for eligible enterprises/organisations to engage local university graduates and postdoctoral talent respectively to conduct R&D work. Since March 2020, the funding scope of the two programmes has been expanded to all technology companies conducting R&D activities in Hong Kong.

12. Since 2016, the RP has nurtured nearly 3 000 researchers with total funding of about \$920 million, while the PH has approved over 1 000 applications with total funding of about \$580 million so far since its launch. In order to provide more flexibility, we will consolidate the two programmes in July this year to allow each eligible enterprise/organisation to engage up to a total of four I&T talents with a bachelor, master or doctoral degree.

13. The 2020-21 Budget has set aside \$40 million to subsidise short-term internships for undergraduates and postgraduates taking STEM programmes in local universities. Through the STEM Internship Scheme, we hope to foster STEM students' interest in pursuing a career in I&T after graduation, so as to enlarge the local I&T talent pool. We have briefed the Panel of the scheme in April and have drawn up, in consultation with the relevant universities, the guidelines for them to implement the scheme in the light of their individual circumstances.

14. As for attracting talent, the Technology Talent Admission Scheme ("TechTAS") provides a fast-track arrangement on admission of talent. Since January 2020, the technology areas of the scheme have been extended from seven to 13, and the coverage has been extended to all companies undertaking R&D activities in these 13 technology areas in Hong Kong. This allows more companies to benefit from the scheme and expedites the admission of technology talent from different parts of the world. For every one to three overseas/Mainland talent admitted, the company would also need to hire one new local full-time employee and two new local interns. This helps to nurture local technology talent and encourage talent exchange.

15. In order to retain talent in Hong Kong, it is of utmost importance to foster I&T development so as to create more R&D employment. Besides, to strengthen the I&T ecosystem in the Hong Kong Science Park ("Science Park"), HKSTPC is building the InnoCell adjacent to the Science Park. Upon completion, the InnoCell will provide around 500 spaces with flexible design and ancillary facilities such as shared work spaces for leasing at affordable rental rates to principals of the tenants and incubatees in the Science Park as well as their overseas or Mainland employees and visiting researchers. With the adoption of the new Modular Integrated Construction method, it is expected the InnoCell will commence operation in early 2021.

## **DEVELOPING R&D INFRASTRUCTURE**

16. Quality infrastructure and facilities are indispensable for promoting I&T.

### *InnoHK Research Clusters*

17. The Government is pressing ahead with the establishment of the *InnoHK* research clusters in the Science Park. The first two research

clusters are “*Health@InnoHK*” focusing on healthcare technologies and “*AIR@InnoHK*” focusing on artificial intelligence and robotics technologies. A total of 65 proposals from world renowned universities and research institutes were received. After a rigorous selection and assessment process, we are following up with the institutions whose proposals are recommended for admission. The first batch of R&D laboratories is expected to be set up progressively this year. To further promote global R&D collaboration in Hong Kong, we will also explore the setting up of the third *InnoHK* research cluster.

### *Science Park and R&D facilities*

18. The Government announced in the 2018-19 Budget that \$3 billion would be allocated to HKSTPC for developing research-related facilities. Good progress has been made. For example, the Robotics Catalysing Centre with its area expanded from about 400 sq. m. to over 2 000 sq. m., and AI Plug, which is a new artificial intelligence (“AI”) laboratory, started operation in January 2020. In addition, HKSTPC commenced in May this year the pilot operation of the Biobank, which provides services including collection, processing, storage and sharing of bio-specimens.

19. To cope with the keen demand of R&D facilities and related ancillary services, it was further announced in the 2020-21 Budget that \$3 billion would be earmarked for taking forward Phase II of the Science Park Expansion Programme (“SPX2”). HKSTPC has preliminarily proposed to build two laboratory annex buildings of a few storeys and specialised laboratories of two to three storeys at podiums in the Science Park, involving a gross floor area (“GFA”) of about 28 000 sq. m. HKSTPC is currently conducting studies on the SPX2. We will consult the Panel on the SPX2 in the next legislative session. If the funding is approved by the LegCo Finance Committee (“FC”), we anticipate that the expansion works will commence in the second half of 2021 for completion in stages from end 2022 to 2024.

### *Hong Kong-Shenzhen Innovation and Technology Park*

20. The Government is developing the Hong Kong-Shenzhen Innovation and Technology Park (“the Park”) in the Lok Ma Chau Loop (“the Loop”) into a key base for co-operation in scientific research, with related higher education, cultural and creative, as well as other complementary facilities provided at the site. Various planning and infrastructural works are in full swing.

21. With the commencement of site formation and infrastructural works for the Loop under the Advance Works in June 2018, it is expected that the first batch of land parcels will be made available by 2021 for the development of the Loop. Detailed design of Main Works Package 1 for the Park in the Loop is currently in progress. The Hong Kong-Shenzhen Innovation and Technology Park Limited is also conducting studies on development of the Park. Upon completion of relevant planning and design work, we would present the results to the Panel and seek FC's funding approval for the development of Main Works Package 1 and first batch of buildings in the Park for commencing the construction works.

#### *Cyberport 5*

22. The Government announced in the 2019-20 Budget that \$5.5 billion would be earmarked for the development of Cyberport 5 to attract more technology companies and start-ups, and provide a pathway for young people to pursue a career in I&T. Cyberport 5 will provide a gross floor area of around 66 000 sq. m., which will include offices, Smart-Space co-working space, conference venues and data services platform. We plan to submit the funding proposal to the FC in the first half of 2021. Construction is expected to complete in 2024 at the earliest.

### **PROVIDING VENTURE CAPITAL**

#### *Innovation and Technology Venture Capital ("ITVF")*

23. The Government established the \$2 billion ITVF to co-invest with its co-investment partners in eligible local I&T start-ups at the ratio of 1:2, in order to propel private investors to invest more in local I&T start-ups, thereby creating a more vibrant I&T ecosystem. As at the end of May 2020, the ITVF has invested in 14 local I&T start-ups with a total investment of about \$78 million, attracting private investment of over \$300 million in the companies concerned during the same round of financing. These start-ups are engaged in a wide variety of businesses, including financial technology, e-commerce, supply chain management, biotechnology and artificial intelligence, etc.

24. To explore more co-investment projects, the ITC has invited a new round of applications as co-investment partners and the assessment work is now underway.

### *Provide Support for Technology Enterprises*

25. The 2018-19 Budget announced to allocate \$7 billion to HKSTPC to enhance support for its tenants and incubatees. HKSTPC has progressively rolled out relevant funding support and enhanced initiatives, including the expansion of three existing incubation programmes, provision of rent concession, as well as the launch of the ELITE pilot programme to finance, on a matching basis, technology enterprises with growth potential and proactive R&D investment in the Science Park.

26. Besides, HKSTPC established a Corporate Venture Fund (“CVF”) in 2015 to co-invest, on a matching basis, with private funds in its tenants/incubatees. The CVF’s first \$50 million has been fully committed to nine enterprises engaging in the areas of biotechnology, AI, robotics and information technology, attracting over \$683 million from 22 co-investors. In early 2019, HKSTPC injected \$200 million to expand the CVF, and has since completed investments in five technology enterprises with a total investment of about \$29.2 million, attracting around \$586.5 million from the co-investors.

27. The Government injected \$200 million into Cyberport in 2018-19 for enhancing its existing measures and introducing new initiatives to support its start-ups and tenants. Such measures include increasing the financial subsidy of the Cyberport Incubation Programme from \$330,000 to \$500,000 and the launch of the Overseas/Mainland Market Development Support Scheme to assist start-ups in expanding into overseas markets. The scheme has approved 51 applications so far, involving a financial subsidy of about \$2 million. Cyberport has also launched the Easy Landing Scheme to attract multi-national corporations (“MNCs”) to set up offices there through the provision of rental concessions. Under the scheme, two renowned MNCs have respectively rented offices of over 17 000 and 3 000 sq. ft. in Cyberport.

### **PROMOTING I&T CULTURE**

28. On fostering an I&T culture, the General Support Programme (“GSP”) under the ITF supports non-R&D projects that help upgrade local industries and promote an I&T culture. Through providing funding support to organise events such as conferences, exhibitions, seminars, workshops, youth activities, etc., the GSP promotes the I&T culture amongst the general public and cultivate young people’s knowledge and interest in I&T. Since 2016, the GSP has funded 107 projects with funding of about



\$207 million. Projects funded include the Gerontech and Innovation Expo cum Summit, the Hong Kong Student Science Project Competition, the Innovation and Technology Scholarship and the Hong Kong University Student Innovation and Entrepreneurship Competition, etc.

29. Besides, in order to promote the atmosphere and culture of I&T in Hong Kong, the Government will organise the annual City Innovation and Technology Grand Challenge. We will openly invite the public to put forward solutions with I&T elements for topics that are closely related to daily lives. In addition to cash prizes and other awards, winners may be offered the opportunity to receive funding support for the adoption, enhancement and trials of the selected solutions in suitable public sector organisations/communities. HKSTPC will be responsible for organising and implementing the competition. We expect the first competition to be launched this year.

## **PROMOTING “RE-INDUSTRIALISATION”**

30. The Government actively promotes “re-industrialisation” to develop advanced manufacturing industries that are based on new technologies and smart production, so as to identify new growth points for Hong Kong’s economic development.

### *Develop Manufacturing Facilities*

31. In respect of infrastructure, HKSTPC is developing the Data Technology Hub (“DT Hub”) and the Advanced Manufacturing Centre (“AMC”) in the Tseung Kwan O Industrial Estate, which will provide a GFA of approximately 27 000 sq. m. and 108 600 sq. m. respectively. The superstructure work of the DT Hub has been completed and the DT Hub is expected to commence operation in the fourth quarter of 2020. The AMC is expected to be completed in 2022. HKSTPC is inviting proposals for leasing these two buildings.

32. In addition, HKSTPC will convert an existing factory in the Yuen Long Industrial Estate into the Microelectronics Centre (“MEC”), which will be equipped with such dedicated facilities as clean rooms, dangerous goods storage, waste treatment facilities, etc. The FC approved the relevant funding in May this year. HKSTPC is pressing ahead with its work, striving to complete the project in 2022.

### *Re-industrialisation Funding Scheme*

33. On financial support, as approved by the FC in May this year, the Government will launch the \$2 billion “Re-industrialisation Funding Scheme” (“RFS”) to subsidise manufacturers on a matching basis to set up smart production lines in Hong Kong in order to expedite the development of “re-industrialisation”.

34. Under the RFS, all companies incorporated in Hong Kong under the Companies Ordinance (Cap. 622) are eligible to apply for funding. The Government will provide funding on a 1(Government):2(enterprise) matching basis, covering a maximum of one-third of the total approved project expenditure or \$15 million per project, whichever is the lower. The funding will cover expenses directly related to the establishment of the new smart production line in Hong Kong, including the costs of procurement, installation and commissioning of the machinery/equipment/apparatus, as well as fees for engaging technical consultancies for the design and setting up of the production line concerned, including testing and staff training, etc. ITC is working in full steam to finalise the details with a view to launching the RFS in July 2020.

### *Reindustrialisation and Technology Training Programme*

35. In terms of talent training, the Government introduced the “Reindustrialisation and Technology Training Programme” (“RTTP”) in 2018 to fund staff of local enterprises on a 2(Government):1(enterprise) matching basis to receive training in advanced technologies, especially those related to “Industry 4.0”. The RTTP is administered by the Vocational Training Council (“VTC”) and overseen by VTC’s Innovation and Technology Training Board, which also determines the types of technology training that can be funded. As at end of April 2020, the RTTP has approved 452 applications for registering public courses and funding of about \$14.88 million for 2 397 trainees to receive training in advanced technologies.

### *“Industry 4.0”*

36. The Hong Kong Productivity Council (“HKPC”) has been dedicating efforts to assist enterprises in moving towards high value-added production and gradually upgrading to “Industry 4.0”. For example, the HKPC has partnered with the Fraunhofer Institute for Production Technology of Germany, an international pioneer of “Industry 4.0”, to implement the “Industry 4.0 Upgrade and Recognition Programme”.

Moreover, they jointly established the “Invention Centre” to help the industry accelerate the adoption of innovative industrial technologies so as to promote the development of smart industry and digital manufacturing.

37. HKPC also set up the “Smart Manufacturing Centre Digital@HKPC” in May 2019 to showcase smart innovative products, materials, machinery and manufacturing processes to help the industry accelerate the adoption of innovative industrial technologies. In addition, HKPC continues to provide workspace and technical support through the “Inno Space” in order to assist users in developing innovative ideas into industrial design, which may subsequently be translated into products through prototyping. The “Inno Space” also organises different types of training programmes and seminars to introduce new technologies and the latest scientific research results, and to encourage the industry to seize the opportunities brought by these new developments.

## **WAY FORWARD**

38. The above-mentioned measures are gradually bearing fruits. Together with the concerted efforts by different parties, the local I&T ecosystem has become increasingly vibrant and the I&T atmosphere has consistently enhanced. In 2018, the GERD of Hong Kong amounted to \$24,497 million, representing an increase of 46% from 2014<sup>4</sup>, while the GERD as a ratio to GDP in the same period has increased from 0.74 to 0.86. The number of R&D personnel increased from about 29 000 to nearly 34 000 in 2018. The number of local start-ups increased from 1 065 in 2014 to 3 184 in 2019, with the number of employees increased from 2 381 to 12 478. The venture capital investment in Hong Kong increased from \$1.24 billion in 2014 to \$16.3 billion<sup>5</sup> in 2018 and \$9.9 billion in 2019, representing an increase by 12 times and seven times respectively. In addition, schools and parents are attaching greater importance to STEM education. Local I&T companies have won awards time and again in international competitions, whereas a number of local enterprises have become “unicorns”.

39. Beyond doubt, there is quite some room for development and enhancement for Hong Kong’s I&T development. The Government will continue to closely communicate and collaborate with stakeholders, with a

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<sup>4</sup> Following international guidelines, the estimates of implicit user cost of R&D facilities has been included in the R&D expenditures as from the reference year of 2018.

<sup>5</sup> In early 2020, the Hong Kong Venture Capital and Private Equity Association revised the number of venture capital investment in Hong Kong from \$17.8 billion to \$16.3 billion due to amendments to the accounting date.

view to creating favourable conditions for local I&T development, promote commercialisation of R&D outcomes and assist in the launching to market of more I&T products and technologies, thereby boosting the economy and improving people's livelihood.

## **ADVICE SOUGHT**

40. Members are invited to note and provide views on our work in fostering I&T development and promoting “re-industrialisation”.

**Innovation and Technology Bureau**  
**Innovation and Technology Commission**  
**June 2020**